

Keel Mountain Density Management and Riparian Buffer Study

Final Decision and Decision Rationale

Environmental Assessment Number OR080-06-02
Tract No. 07-504

August 2007

United States Department of the Interior
Bureau of Land Management, Oregon State Office
Salem District, Cascades Resource Area

Township 12 South, Range 1 East, Sections 13, Willamette Meridian
Santiam River -Hamilton Creek 5th field Watershed.
Linn County, Oregon

Responsible Agency: USDI - Bureau of Land Management

Responsible Official: Cindy Enstrom, Field Manager
Cascades Resource Area
1717 Fabry Road SE
Salem, OR 97306
(503) 375-5969

For further information, contact: Charley Thompson
Cascades Resource Area
1717 Fabry Road SE
Salem, OR 97306
(503) 315-5966



As the Nation’s principal conservation agency, the Department of Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering economic use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

Table of Contents

1.0	Introduction.....	3
2.0	Decision	3
3.0	Alternatives Considered	5
4.0	Decision Rationale	5
5.0	Compliance with Direction.....	6
6.0	Public Involvement/ Consultation/Coordination.....	10
7.0	Conclusion	11
8.0	Map.....	13
9.0	Survey and Manage Compliance Forms	14
10.0	Response to Comments Received during the EA Comment Period:	20

BLM/OR/WA/EA-07/072+1972

1.0 Introduction

Bureau of Land Management (BLM) has conducted an environmental analysis for the Keel Mountain Density Management and Riparian Buffer Study project, which is documented in the *Keel Mountain Density Management and Riparian Buffer Study Environmental Assessment* (EA) and the associated project file. The Proposed Action of the Keel Mountain Density Management and Riparian Buffer Study project is to continue the original study initiated in 1997 through variable tree density thinning 155 acres within the Matrix Land Use Allocation (LUA) and the Riparian Reserve (RR) LUA. A Finding of No Significant Impact (FONSI) was signed on March 27, 2007 and the EA and FONSI were then made available for public review.

2.0 Decision

I have decided to implement the Proposed Action of the Keel Mountain Density Management and Riparian Buffer Study Project as described in the EA (EA pp. 14-19). The Proposed Action will implement the treatments designed by the involved researchers, thus advancing the development of the project, as defined in the BLM Density Management and Riparian Buffer Study (DMS) study plan. The thinnings will be implemented through a timber sale. This decision is based on site-specific analysis in the *Keel Mountain Density Management and Riparian Buffer Study Environmental Assessment* (EA # OR080-06-02), the supporting project record, public comment, and management recommendations contained in the Hamilton Creek Watershed Analysis; as well as the management direction contained in the *Salem District Resource Management Plan* (May 1995), which are incorporated by reference in the EA. This Decision is summarized in this section of the Decision Rationale (DR) and is hereafter referred to as the “selected action”.

2.1 Silvicultural Treatments

Approximately 155 acres will be thinned to various tree densities as described in the Keel Mountain Density Management Study (DMS) plan and in the EA (pp. 14-15). Tree densities will range from 35-120 trees/acre in various plot locations as described in the DMS study. In addition, all leave islands and patch openings (from the previous entry, see EA pp.8-9, 14-15), plus the control unit will be left intact in this second round of treatments.

2.2 Logging Systems

Approximately 108 acres (70% of the project area) will be harvested using ground-based yarding and approximately 47 acres will be harvested using skyline yarding.

2.3 Road Work and Haul

- 0.18 mile of road will be constructed to accommodate logging equipment and log transport. Following logging, the road will be closed.
- 4.12 miles of existing BLM roads will be renovated.

2.4 Fuel Treatments

Activity generated fuels at log landing locations will be disposed of through piling and burning.

2.5 Culvert Removal for Fish passage

A culvert at the end of Road 12-1E-14.02 will be removed to facilitate fish passage.

2.6 Coarse Woody Debris Creation

Two green conifers per acre will be felled to provide a pulse of coarse woody debris.

2.7 Design Features

Project design features are described in *EA section 2.2.2*. This section is a summary of the project design features that apply to the Selected Action. Design features are organized by resource management objectives.

1. **To minimize soil productivity loss:** Design features described for this resource (EA p. 16) will be applied to the Selected Action. Examples include:
 - Ground-based logging operations: a) limiting soil compaction and disturbance; b) limiting tractor skidding operations when soil moisture is high; c) placing organic debris on skid trails and limiting equipment passes on skid trails; d) locating slash piles to reduce heat damage; e) limiting slopes to 35 percent for equipment using one-end suspension and 45 percent on log transport equipment using full suspension; f) using existing skid trails.
 - Skyline logging operations: a) requiring one end suspension of logs; b) using equipment with lateral yarding capabilities; c) designing landings to limit soil compaction and disturbance.
2. **To protect other components of Hydrologic Functions (Channels, Flows, Water Quality):** Design features for this resource (EA p. 17) will be applied to the Selected Action. Examples include: a) conducting road work during dry conditions; b) utilizing currently available equipment and practices that can achieve the objectives of the Best Management Practices (BMPs) (RMP Appendix C); c) designing skid trail patterns to avoid concentrating runoff water flows or directing runoff water into streams; d) installing waterbars on yarding corridors or skid roads as needed to prevent excessive erosion, gullyng and sedimentation.
3. **To protect and enhance stand diversity and wildlife habitat components:** Design features for this resource (EA p. 17) will be applied to the Selected Action. Examples include: retaining large snags, coarse woody debris, minor conifer tree species, hardwoods, and most cull and deformed trees, approving skid trail locations to avoid impacting snags.
4. **To protect against expansion of invasive and non-native plant species:** Design features for this resource (EA p. 18) will be applied to the Selected Action. Examples include: cleaning ground disturbing equipment prior to entering the project area.
5. **To protect the residual stand:** Design features for this resource (EA p. 18) will be applied to the Selected Action. Examples include: restricting operations during the spring growing season, using directional falling; locating slash piles to minimize heat damage to tree crowns or tree boles.
6. **To minimize disturbance to BLM Special Status Species and other Species of Concern:** Design features for this resource (EA p. 18) will be applied to the Selected Action. Examples include: retaining large coarse woody debris, shutting down or restricting operations at any time if plant or animals needing protection are found, restricting operations during critical nesting period for northern spotted owl

7. **To protect cultural resources:** Design features for this resource (EA p. 18) will be applied to the Selected Action. Examples include: shutting down or restricting operations after finding cultural resources that need protection.
8. **Summary of seasonal restrictions and permitted operational periods:** Seasonal restrictions described in Table 3, EA page 19 will be applied to the Selected Action. Examples include: restricting most logging operations and road work during owl nesting, restricting falling and yarding during bark slippage, restricting tractor operations to avoid soil damage; restricting road construction as an erosion control measure and to avoid soil damage.

3.0 Alternatives Considered

The Proposed Action and alternatives were described in *EA section 2.0*. The following alternatives were considered and not selected.

1. **No Action Alternative (*EA section 2.3*):** This phase of the DMS study will not take place. The No Action Alternative was not selected because it will not meet the research objectives outlined in the DMS report.

Table 1 shows how the Selected Action meets the purpose and need of the project as compared to the No Action alternative.

Table 1: Comparison of the Alternatives with Regard to the Purpose of and Need for Action

Purpose and Need (EA section 1.3)	No Action	Proposed Action
Research Support: To continue implementation of the Keel Mountain DMS research project, which is designed to test critical assumptions of the Northwest Forest Plan's Standards and Guidelines, and produce results important for late-successional habitat development.	Does not fulfill the primary objective of continuing established and ongoing research.	Fulfills. Continues established and ongoing research.
Provide appropriate road access for managing the study	Does not fulfill: Replacing the culvert that is not up to standards will not take place (EA section 3.5).	Fulfills
Reduce environmental effects associated with identified existing roads within the project areas (RMP p. 11).		Fulfills. Removing the culvert on Road 12-1E-14.02 will enhance fish passage (EA sections 3.5).

4.0 Decision Rationale

Considering public comment, the content of the EA and supporting project record, the management recommendations contained in the Hamilton Creek Watershed Analysis, and the management direction contained in the RMP, I have decided to implement the selected action as described in section 2.0 of this Decision Rationale. The following is my rationale for this decision.

The Selected Action: (*EA section 1.3.1*):

1. Meets the purpose and need of the project (*EA section 1.3*), as shown in *DR Table 1*.
2. Will not have significant impact on the affected elements of the environment beyond those already anticipated and addressed in the RMP EIS (EA FONSI pp. 4-7).
3. Implements the next phase of the DMS project as described in the *BLM Density Management and Riparian Buffer Study: Establishment Report and Study Plan, 2006 (DMS Study Plan)*;
4. Furthers the development of the Keel Mountain study site as a place to share results of on-the-ground practices and study findings with land managers, regulatory agencies, policy-makers, and the general public.

In addition, the Selected Action

5. Complies with the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (*EA section 1.3*), (*DR section 5.0*).
6. Uses the minimum transportation system to facilitate implementation of the project by using existing roads and limiting new construction to 0.18 miles of new road.

5.0 Compliance with Direction

The analysis documented in the Keel Mountain Density Management and Riparian Buffer Study EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS). This project has been designed to conform to the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (EA pp. 11-13). All of these documents may be reviewed at the Cascade Resource Area office.

5.1 Compliance with the Aquatic Conservation Strategy

On March 30, 2007, the District Court, Western District of Washington, ruled adverse to the US Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA-Fisheries) and USFS and BLM (Agencies) in *Pacific Coast Fed. of Fishermen's Assn. et al v. Natl. Marine Fisheries Service, et al and American Forest Resource Council*, Civ. No. 04-1299RSM (W.D. Wash) (PCFFA IV). Based on violations of the Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA), the Court set aside:

1. the USFWS Biological Opinion (March 18, 2004),
2. the NOAA-Fisheries Biological Opinion for the ACS Amendment (March 19, 2004),
3. the ACS Amendment Final Supplemental Environmental Impact Statement (FSEIS) (October 2003), and
4. the ACS Amendment adopted by the Record of Decision dated March 22, 2004.

Previously, in *Pacific Coast Fed. Of Fishermen's Assn. v. Natl. Marine Fisheries Service*, 265 F.3d 1028 (9th Cir. 2001)(*PCFFA II*), the United States Court of Appeals for the Ninth Circuit ruled that because the evaluation of a project's consistency with the long-term, watershed level ACS objectives could overlook short-term, site-scale effects that could have serious consequences to a listed species, these short-term, site-scale effects must be considered. The following paragraphs show how the Keel Mountain Density Management and Riparian Buffer Study project meets the Aquatic Conservation Strategy in the context of PCFFA IV and PCFFA II.

Existing Watershed Condition

The Keel Mountain Density Management and Riparian Buffer Study project area is in the South Santiam River -Hamilton Creek watershed which drains into the South Santiam River. Twenty-six percent of the watershed is managed by BLM, 70 % is private industrial forest, 3% is private agricultural / residential land, and 1% is managed by the state of Oregon (Hamilton Creek Watershed Analysis (WA) p. 15). Currently, about 5 percent of the Watershed is considered to be in late-successional forest stands over 75 years of age. Most of the forest stands within the watershed are 35 to 74 year old. Less than 1 percent of the watershed is in old-growth stands over 200 years of age (WA p. 30).

The earliest harvests have been regenerated and are progressing towards providing mature forest structure. Most of the private industrial lands have been logged and will continue to be moved from mid condition class to the early condition class. Private industrial landowners are expected to continue with a similar harvest rotation as has occurred in the watershed since the 1920s (WA p. 17).

Of the 193 estimated stream miles in the landscape, 51 miles (26 percent) are managed by BLM. Approximately 56 percent of the BLM ownership in the Hamilton Creek Watershed falls within Riparian Reserves. Age class distribution within the Riparian Reserve buffers is similar to the age class distribution on BLM across the Watershed. Currently, about 6 percent of the Riparian Reserve buffers are in age classes over 80 years of age and approximate late successional forest conditions. The majority (60 percent) of the Riparian Reserve buffers are in closed sapling pole seral stage between 35 and 75 years of age. About 34 percent are in stands under 35 years of age. Hardwood forest types on both BLM and other ownerships comprise a much larger proportion of the streamside types than the average across the Watershed (WA p. 35).

Review of Aquatic Conservation Strategy Compliance:

I have reviewed this analysis and have determined that the project complies with the ACS on the project (site) scale. The following is an update of how this project complies with the four components of the Aquatic Conservation Strategy, originally documented in the EA, Table 10, p. 46. The project will comply with:

- ***Component 1 – Riparian Reserves:*** by maintaining canopy cover along portions of the streams which will protect stream bank stability and water temperature and by removing a culvert that will improve fish passage on one stream. Along the stream reaches proposed for the “thin-through” riparian treatment, the treatment effects will be monitored by the researchers. The research objective is to evaluate riparian system response to differing riparian buffer widths in a thinning context.
- ***Component 2 – Key Watershed:*** by establishing that the Keel Mountain Density Management and Buffer Study project is not within a Key watershed.
- ***Component 3 – Watershed Analysis:*** The Hamilton Creek Watershed Analysis was completed in March 1995. The Keel Mountain Density Management and Riparian Buffer project will implement a portion of the Special Research and Adaptive Management Opportunities described in the Watershed Analysis (WA p. 74). Specifically, as result of the project, it is expected that the science team will be able to evaluate how alternative silvicultural systems may be used to accelerate the development of old-growth characteristics in young forest stands.

Upland and riparian stand management prescriptions will be integrated in an attempt to achieve multiple species and stand structure objectives. Monitoring results to be obtained are hoped to demonstrate the effectiveness of these density management prescriptions for creating late-successional forest habitat.

- **Component 4 – Watershed Restoration:** by conducting density management studies that are designed to evaluate how alternative silvicultural systems may be used to accelerate the development of old-growth characteristics in young forest stands (WA p. 74).

In addition I have reviewed this project against the ACS objectives at the project or site scale with the following results. The no action alternative does not retard or prevent the attainment of ACS objectives 1-8 because this alternative will maintain current conditions. The no action alternative may delay the attainment of ACS Objective 9 because the undersized culvert would not be replaced, which could have adverse effects on fish passage. The Selected Action does not retard or prevent the attainment of ACS objectives 1-3, 5-9 for the reasons stated in the following paragraphs. In the short term, the Selected Action may delay the attainment of that portion of ACS Objective 4 regarding water temperature within the thin through riparian treatment areas.

- **ACS Objective (ACSO) 1 - Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted:** The Selected Action is unlikely to permanently alter the aquatic system either by affecting its physical integrity, water quality, sediment regime or stream-flow. The long term effects of the proposal may be slightly beneficial for the aquatic system as a result of increased wood recruitment and species and structural diversity in the riparian zone (EA p. 5).
- **ACSO 2 – Maintain and restore spatial and temporal connectivity within and between watersheds:** Implementation of the selected action will not eliminate connectivity between project units or adjacent untreated stands under BLM management (EA pp. 6, 44). See ACSO1.
- **ACSO 3 - Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations:** Under the proposed action, with the exception of stream crossing repairs, there will be no direct alteration of any stream channel, wetland or pond morphological feature. In most of the project area yarding operations and equipment will be at least 20 feet from stream channels.

Temporary road construction and road repair at stream crossings will result in small (limited to the road right-of-way), short term (1 year or less) alteration of channels. All effects will likely be within the range of effects disclosed in the RMP/FEIS (BLM, 1994). Other than these effects, this proposal will be unlikely to alter the current condition of channels, wetlands and ponds in the project area: minimization of direct and indirect disturbances from the proposed action will likely result in the maintenance of stream channels and wetlands in their current condition. At the same time, where current conditions in channel are poor, this proposal is unlikely to lead to detectable improvement in the short term (EA p. 29, 30). See ACSO 1.

- **ACSO 4 - Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems:** *Sediment:* Sediment transport and turbidity in this watershed may increase over the short term as a direct result of road repair and construction, culvert removal, together with hauling and yarding in and around riparian zones (Hydrology report pp. 21-26). Over the long-term (beyond two years), current conditions and trends in turbidity and sediment yield will be maintained under the selected action.

Temperature: The Oregon Department of Environmental Quality's (ODEQ) Willamette Total Maximum Daily Load (TMDL) has goals for the maintenance of and/or increase in effective shade adjacent to perennial streams. By thinning the overstory within the "primary shade zone" (about 60 feet, maximum) of a number of the perennial streams in the project area, this action will not follow these recommendations. Some reaches are proposed for a "thin-through" buffer treatment; while other reaches were treated to within about 25 or 50 feet of the active channel in the initial thinning, and are proposed for re-thinning in this proposal. The riparian reserve boundaries are unchanged from the initial thinning for the majority of stream reaches.

The reduction in shade could result in increased heat load to the treated segments of these streams; on hot summer days during low flow this could result in higher peak temperatures. This effect, if it occurs, will be documented by stream temperature monitoring during the study. Temperature increases will likely be small (no more than a one or two degree increase in the peak temperature) and will not be detectable more than a few hundred meters downstream of the treated reach. The effect will diminish as the remaining stand filled in canopy openings and will likely last less than five years. However, this effect is unlikely to occur because the increase in heat load will be minor and stream temperatures in this stream reach are well buffered by ground water inputs which, at elevations of 2,400 feet, tend to keep headwater stream temperatures well below the water quality threshold of 18 degrees centigrade (Hydrology report p. 20).

- **ACSO 5 - Maintain and restore the sediment regime under which aquatic ecosystems evolved:** Under the Selected Action, sediment transport and turbidity in this watershed may increase over the short term as a direct result of road repair and construction, culvert removal, together with hauling and yarding in and around riparian zones (Hydrology report pp. 21-26). Over the long-term (beyond two years), current conditions and trends in turbidity and sediment yield will be maintained under the proposed action. Tree removal, road renovation and construction will not occur on steep unstable slopes where the potential for mass wasting adjacent to stream reaches is high. Therefore, increases in sediment delivery to streams due to mass wasting are unlikely to result from this action.

In addition, potential impacts resulting from tree harvest, road construction, maintenance and use will be mitigated to reduce the potential for detectable sediment delivery to streams, by implementing Best Management Practices (BMPs), such as stream and road buffers, minimum road widths, minimal excavation, ensuring appropriate drainage from road sites, and seasonal limitations on road use and ground-based harvest operations (RMP Appendix C, pp. C-1 to C-9) (EA p. 31).

- ACSO 6 – Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing:** *Ground Water:* It is unlikely the proposal will result in any detectable change to local ground water (Hydrology report pp. 27). The proposal will remove less than half the existing forest cover and the root systems of the conifers retained will quickly exploit any additional soil moisture availability. Proposed road construction will not involve excavation into side slopes where water tables could be intercepted.

Base Flow: It is unlikely the proposal will result in any detectable change to local base flow, because the proposed project will remove approximately half the existing forest cover, so that the root systems of the conifers retained will quickly exploit any additional soil moisture availability.

Peak flow effects from harvest: Since portions of the project area are in a zone subject to transient snow accumulations in the winter, it can be assumed that the reduction in stand density may result in some small increase in snow accumulation and melting during rain-on-snow (ROS) events. However, due to the small area considered in this action, this effect is not likely to result in detectable changes to peak flows in these watersheds.

Peak flow effects from new road construction: New road construction under the proposed action will be limited to stable slopes. Slopes in these areas are low to moderate, and will not require extensive full-bench or cut-and-fill construction. This is unlikely to have a detectable effect on peak flows because there will be no interception of surface or ground water with delivery to streams.

Peak flow effects from roads: Most of the roads that will be utilized under this proposal already exist. This proposal will not alter these roads in a way that will likely reduce or increase any existing effect to peak flows attributable to the current road network, and thus, it will maintain the current condition and trends relative to hydrology and stream flow that existing roads contribute to. Improvement and repair of road surfaces will be implemented under the proposed action. Some of these actions may reduce existing road effects on local and watershed hydrology (EA p. 30).
- ACSO 7 - Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands:** Selected Action – See ACSO 1 and ACSO 3.
- ACSO 8 – Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability:** Selected Action – See ACSO 1.
- ACSO 9 - Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species:** Selected Action – See ACSO 1.

6.0 Public Involvement/ Consultation/Coordination

6.1 Scoping:

Scoping: In compliance with NEPA, the project first appeared in the March 2006 edition of the quarterly Salem District Project Update, which was mailed to over 1,000 addresses. Also, a scoping letter was mailed on April 9, 2006. No scoping comments were received (EA p. 50).

6.2 Comment Period and Comments:

The Keel Mountain Density Management and Riparian Buffer Study EA was made available for public review March 28, 2007 to April 27, 2007. A legal notice was placed in the Albany Democrat Herald newspaper on March 28, 2007, and posted on the Salem District's website. One comment letter was received. Responses to these comments can be found in *DR section 10.0*.

6.3 ESA Section 7 Consultation

1. U.S. Fish and Wildlife Service (EA p. 49): The Keel Mountain Density Management Study project (DMS project) was submitted during the FY2007/2008 consultation process. The *Batched Biological Assessment for Projects with the Potential to Modify the Habitat of the Northern Spotted Owl, Willamette Province, FY 2007-2008* (BA), was submitted in July 2006. Using effect determination guidelines, the BA concluded that overall, the DMS project may affect, but is not likely to adversely affect the northern spotted owl due to the modification of dispersal habitat (BA, pp. 40-41, 44-45). The Biological Opinion (BO) associated with this project was issued in September 2006 (reference # 1-7-06-F-0179). The BO concluded that this project will not jeopardize the continued survival of the spotted owl (p. 95). None of the proposed units are located in Critical Habitat for the northern spotted owl.

2. NOAA Fisheries (NMFS) (EA pp. 49-50):

A determination has been made that this project will have no effect on Upper Willamette River (UWR) steelhead trout or UWR Chinook salmon (EA section 3.5). Consequently, no consultation with NOAA Fisheries is required. The project will also have no effect on Critical Habitat for the species listed above, or on Essential Fish Habitat (EFH) as designated under the Magnuson-Stevens Fishery Conservation Act. The determinations of "no effect" are based primarily on the location of the project relative to ESA listed species distributions: all of the proposed project units are greater than four miles upstream of habitat that may be occupied by ESA listed fish species, as shown in EA Table 7.

7.0 Conclusion

7.1 Review of Finding of No Significant Impact

I have determined that change to the Finding of No Significant Impact (FONSI – March 27, 2007) for the Keel Mountain Density Management and Riparian Buffer Study is not necessary because I've considered and concur with information in the EA and FONSI and this Decision Rationale. The comments on the EA were reviewed and no information was provided in the comments that lead me to believe the analysis, data or conclusions are in error or that the selected action needs to be altered.

The selected action will not have significant effects on the affected elements of the environment beyond those already anticipated and addressed in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS) to which the *Keel Mountain Density Management and Riparian Buffer Study Environmental Assessment* is tiered. Therefore Supplemental or additional information to the analysis in the RMP/FEIS in the form of a new environmental impact statement is not needed for the reasons described in the Finding of No Significant Impact (EA pp. 4-7).

7.2 Administrative Review Opportunities

The decision described in this document is a forest management decision and is subject to protest by the public. In accordance with Forest Management Regulations at 43 CFR 5003, protests of this decision may be made within 15 days of the publication of a notice of decision in a newspaper of general circulation.

This notice of decision will be published in the *Albany Democrat Herald* newspaper on August 1, 2007. To protest this decision a person must submit a written protest to Cindy Enstrom, Cascades Field Manager, 1717 Fabry Rd SE, Salem, Oregon 97306 by the close of business (4:30 p.m.) on August 16, 2007. The regulations do not authorize the acceptance of protests in any form other than a signed, written hard copy that is delivered to the physical address of the advertising BLM office. The planned sale date is August 29, 2007.

The protest must clearly and concisely state the reasons why the decision is believed to be in error. Any objection to the project design or my decision to go forward with this project must be filed at this time in accordance with the protest process outlined above. If a timely protest is received, this decision will be reconsidered in light of the statements of reasons for the protest and other pertinent information available and shall serve a decision in writing on the protesting party (43 CFR 5003.3).

7.3 Implementation

If no protest is received within 15 days after publication of this Decision Record (Keel Mountain Density Management and Riparian Buffer Study DR) this decision will become final. For additional information, contact Randy Herrin (503) 315-5924 or Rudy Hefter (503) 315-5671, Cascades Resource Area, Salem BLM, 1717 Fabry Road SE, Salem, Oregon 97306.

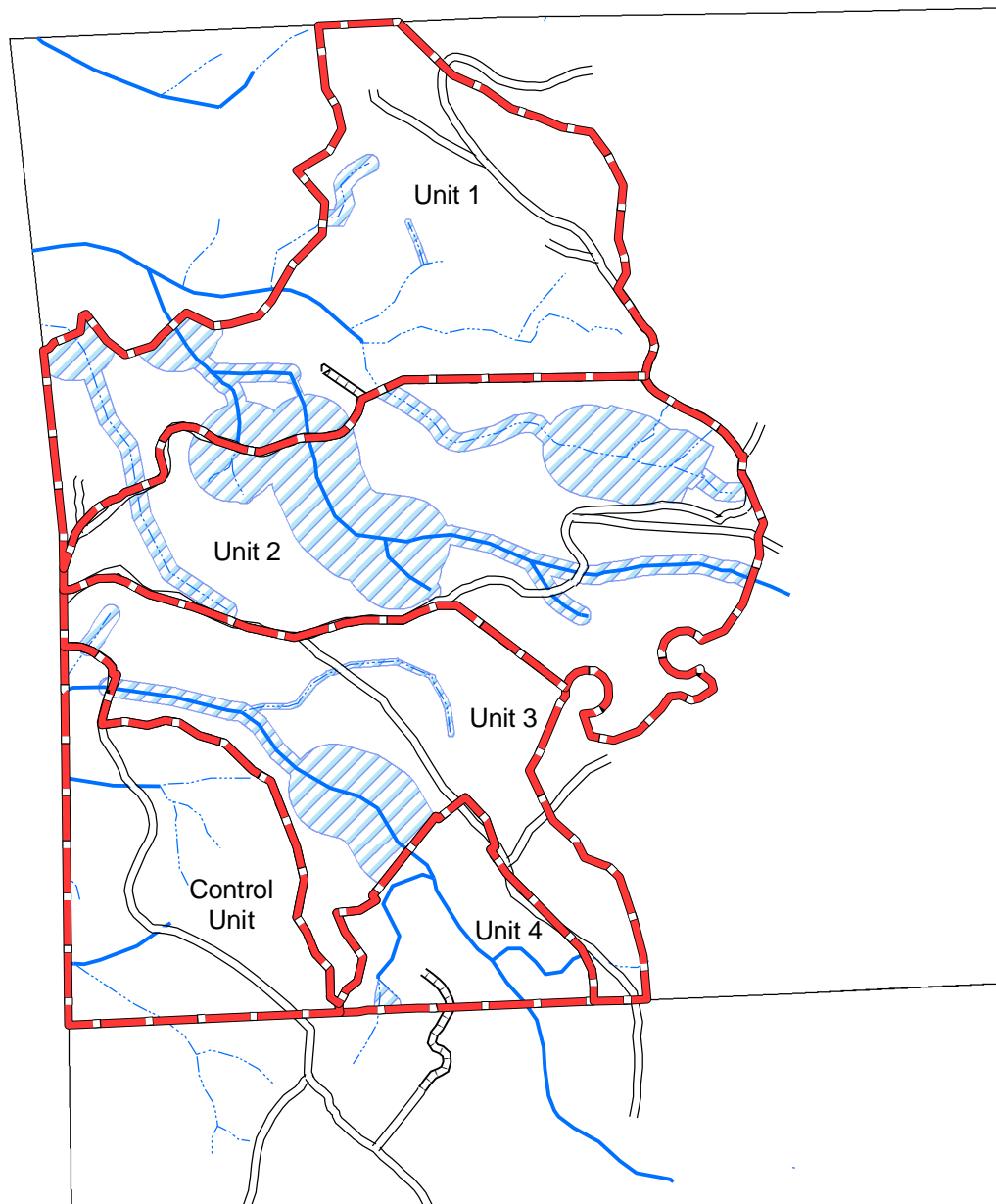
Approved by: Cindy Enstrom
Cindy Enstrom, Field Manager
Cascade Resource Area

Date 7-31-2007

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Section 13, T. 12 S., R. 1 E., W.M. - SALEM DISTRICT

Keel Mountain Density Management & Riparian Buffer Study

FY 2007 - EA No. **OR 080-06-02**



Treatment Area Boundary



Unit No.

- Unit 1 - High Density**
- Unit 2 - Variable Density**
- Unit 3 - Moderate Density**
- Unit 4 - Riparian Buffer**
- Case Study**
- Control Unit - no treatment**



Stream Buffer



Existing road



New road construction

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

0 500 1,000 2,000 Feet

2001 ROD Compliance Review: Survey & Manage Wildlife Species

Environmental Analysis File
Salem District BLM – Cascades Resource Area

Project Name: Keel Mountain Density Management Study
Project Type: Commercial Thinning
Location: T.12S, R.1E, Sec. 13
Willamette Meridian.

Prepared By: Jim England
Date: February 28, 2007
List Date: December 19, 2003

Table A. Survey & Manage Wildlife Species. Species listed below include those vertebrate species whose known range includes the Salem District according to *Survey Protocols for Amphibians under the Survey & Manage Provision of the Northwest Forest Plan v3.0* (1999), *Survey Protocol for the Great Gray Owl within the Range of the Northwest Forest Plan v3.0* (Jan. 2004), *Survey Protocol for the Red Tree Vole v2.1* (Oct. 2002) and those mollusk species that are known or suspected within the District according to the *Survey Protocol for S&M Terrestrial Mollusk Species v3.0* (Feb. 2003).

SPECIES	S&M CATEGORY	SURVEY TRIGGERS			SURVEY RESULTS			SITE MANAGEMENT?
		Within range of the species?	Project contains suitable habitat?	Project may negatively affect species/habitat?	Surveys Required?	Survey Date (month/year)	Sites Known or Found?	
Vertebrates								
Larch Mountain Salamander ¹ (<i>Plethodon larselli</i>)	A	N	N	NA	N	NA	NA	NA
Great Gray Owl ² (<i>Strix nebulosa</i>)	A	Y	N	NA	N	NA	NA	NA
Oregon Red Tree Vole ³ (<i>Arborimus longicaudus</i>)	C	Y	N	NA	N	NA	NA	NA
Mollusks								
Puget Oregonian ⁴ (<i>Cryptomasix devia</i>)	A	N	N	NA	N	NA	NA	NA
Crater Lake Tightcoil ⁵ (<i>Pristiloma arcticum crateris</i>)	A	Y	N	NA	N	NA	NA	NA
Evening Fieldslug ⁶ (<i>Deroceras hesperium</i>)	B	Y	N	NA	N	NA	NA	NA
Columbia Dusksnail ⁷ (<i>Lyogyrus</i> n. sp. 1)	A	N	N	NA	N	NA	NA	NA
Basalt Juga ⁸ (<i>Juga</i> [<i>Oreobasis</i>] n. sp. 2)	A	N	N	NA	N	NA	NA	NA

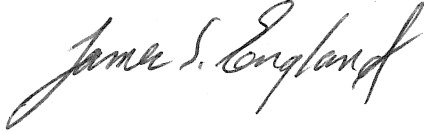
NA = Not Applicable

- ¹ In the Salem District, the range of the Larch Mountain salamander is only in the very northern portion of the Cascades Resource Area, within 14 miles of the Columbia River, east of the confluence with the Sandy River according to *Survey Protocols for Amphibians under the Survey & Manage Provision of the Northwest Forest Plan v3.0* (1999) pages 262 and 269. The project area is not within this location.
- ² Pre-disturbance surveys for great gray owls are not required within the project area due to a lack of suitable habitat. The required habitat characteristics of suitable habitat in Oregon Western Cascades Physiographic Province includes: (1) large diameter nest trees, (2) forest for roosting cover, and (3) proximity [within 200m] to openings that could be used as foraging areas (*Survey Protocol for the Great Gray Owl within the range of the Northwest Forest Plan v3.0*, January 12, 2004 pg 13). It is not necessary to survey suitable nesting habitat adjacent to natural openings smaller than 10 acres (page 5) and pre-disturbance surveys are not suggested in suitable nesting habitat adjacent to man-made openings at this time (pg. 14).
- ³ In general, the red tree vole was removed from the Survey and Manage program in the mesic zone as a result of the 2003 Annual Species Review process. In the Salem District, predisturbance surveys for red tree voles are required to be conducted only in suitable habitat of the North Mesic Zone of their range, and the project area falls within this zone. According to the survey triggers for the Red Tree Vole (Version 2.1, Revision, October 2002), all of the units in the project area are mid seral stands younger than 80 years of age, and lack structure.
- ⁴ In the Salem District, the range of *Cryptomastix devia* is limited to Tillamook Resource Area, and Multnomah County in the Cascades Resource Area. The project area is not within this range.
- ⁵ In the Salem District, *Pristiloma articum crateris* is suspected to occur above 2,000 feet elevation in the Cascades Resource Area only. This species is “limited to perennially wet situations in mature conifer forests, among rushes, mosses and other surface vegetation or under rocks and woody debris within 10 m of open water in wetlands, springs, seeps and riparian areas, generally in areas which remain under snow for long periods in the winter.” Unless these specific habitats will be disturbed, no surveys are necessary. The described habitats are not present within the project area and will not be disturbed.
- ⁶ In the Salem District, *Derocerus hesperium* has the potential to occur in all three resource areas however it is “limited to moist surface vegetation and cover objects within 30 m (98 ft.) of perennial wetlands, springs seeps and riparian areas.” Unless these specific habitats will be disturbed, no surveys are necessary. Where habitat is present, equivalent-effort pre-disturbance surveys are required for this species. The described habitats are not present within the project area and will not be disturbed.
- ⁷ *Lyogyrus* n. sp. 1 is a Columbia Gorge endemic, found on both sides from east and south of Portland to Hood River, Oregon. Most sites are in Gorge tributaries; a few other sites occur in drainages originating from near Mount Hood, Oregon, to Mount St. Helens, Washington. In the Salem District, it is likely to be found only in the Cascades Resource Area, and only in cold, pure, well-oxygenated springs within a few miles of the Columbia River in Multnomah County. This project is not tributary to the Columbia Gorge. The described habitats are not present within the project area.
- ⁸ *Juga* n. sp. 1 is a Columbia Gorge endemic, and is found sporadically in springs in the central and eastern portions of the Columbia Gorge on the Oregon side only in Hood River and Wasco counties, Oregon, including sites in Mount Hood National Forest and sites in Columbia Gorge National Scenic Area. In the Salem District, it is likely to be found only in the Cascades Resource Area, and only in cold, pure, well-oxygenated springs within a few miles of the Columbia River in Multnomah County. The project is not located in Multnomah County and is not tributary to the Columbia Gorge. The described habitats are not present within the project area.

Statement of Compliance. The Keel Mountain Density Study complies with the *2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines* (as the 2001 ROD was amended or modified as of March 21, 2004). There are no known Category B, C, D, E, and F species within the Keel Mountain Density Study project area.

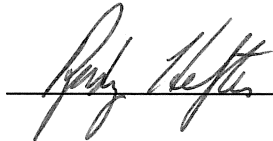
Therefore, based on the preceding information (refer to Table A above) regarding the status of surveys and site management for Survey & Manage wildlife species, it is my determination that the Keel Mountain Density Study project complies with the provisions of the *2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines* (as the 2001 ROD was amended or modified as of March 21, 2004). For the foregoing reasons, this project is in compliance with the 2001 ROD as stated in Point (3) on page 14 of the January 9, 2006, Court order in Northwest Ecosystem Alliance et al. v. Rey et al. In addition, these types of projects fall under the exemptions specified in the October 11, 2006 modification of Northwest Ecosystem Alliance et al. v. Rey et al.

Signature:



Date:

3/22/07

for Cindy Enstrom, 

Cascades Resource Area Manager

2001 ROD Compliance Review: Survey & Manage Botany Species

Environmental Analysis File

Salem District Bureau of Land Management – Cascade Resource Area

Project Name: Keel Mt DMS

Prepared By: Terry Fennell

Project Type: Density Management Study

Date: 07/19/2007

Location: Areas of Proposed Action in T12S-R1E-Sec.13

S&M List Date: December 2003

Table A. Survey & Manage Species Known and Suspected in the Salem District. Species listed below were compiled from the 2003 Annual Species Review (IM-OR-2004-034) and includes all species in which pre-disturbance surveys may be needed (Category A, C and non-fungi Category B species if the project occurs in old-growth as defined on page 79-80 of the 2001 ROD) and lists known sites of other survey and manage species that are known to occur within the project area. In addition, the table indicates whether or not a survey was required, survey results and site management.

The following survey protocols and literature were used in determining species known range, habitat and survey methodology. All field surveys were conducted using the intuitive controlled method.

Fungi:

Survey Protocols for *Bridgeoporus* (=Oxyporus) *nobilissimus* (Version 2.0, May 1998)

Handbook to Strategy 1 Fungal Species in the Northwest Forest Plan (Oct. 1999)

Handbook to Additional Fungal Species of Concern in the Northwest Forest plan (Jan. 2003)

Lichens:

Survey Protocols for Component 2 Lichens (Version 2.0, March 1998)

Management Recommendations for Survey and Manage Lichens (Version 2.0, March 2, 2000)

Survey Protocols for Survey and Manage Category A & C Lichens in the Northwest Forest Plan Area (Version 2.1 (2003)

2003 Amendment to the Survey Protocol for Survey and Manage Category A & C Lichens. (Version 2.1 Amendment, September 2003)

Survey Protocol Guidance For Conducting Equivalent Effort Surveys Under the Northwest Forest Plan Survey and Manage Standard and Guidelines. (March 2006).

Pseudocyphellaria perpetua Supplemental Guidance for Pre-Disturbance Surveys Under the Northwest Forest Plan Survey and Manage Standard and Guidelines (March 2006).

Bryophytes:

Survey Protocols for Protection Buffer Bryophytes (Version 2.0)

Vascular Plants:

Survey Protocols for Survey and Manage Strategy 2 Vascular Plants (Version 2.0, December 1998).

All species:

Rare, Threatened and Endangered Species of Oregon; Oregon Natural Heritage Information Center (May 2004).

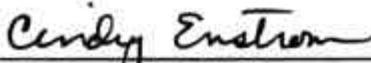
Species	S&M Category	Survey Triggers			Survey Results			Site Management
		Within Range of the Species?	Project Contains Suitable habitat?	Project may negatively affect species/habitat?	Surveys Required?	Survey Completion Date	Sites Known or Found?	
Fungi								
<i>Bridgeoporus nobilissimus</i>	A	Yes	No	No	No ^{1,4}	N/A	No	No
Lichens								
<i>Bryoria pseudocapillaris</i>	A	No	No	No	No ²	N/A	No	No
<i>Bryoria spiralifera</i>	A	No	No	No	No ²	N/A	No	No
<i>Dendroscocaulon intricatulum</i>	A	Yes	Yes	Yes	Yes	Various ⁹	No	No
<i>Hypogymnia duplicata</i>	C	Yes	Yes	Yes	Yes ⁴	Various ⁹	No	No
<i>Leptogium cyanescens</i>	A	Yes	Yes	Yes	Yes	Various ⁹	No	No
<i>Lobaria linita</i> var. <i>tenuoir</i>	A	Yes	Yes	Yes	Yes	Various ⁹	No	No
<i>Nephroma occultum</i>	C	Yes	Yes	Yes	Yes ⁴	Various ⁹	No	No
<i>Niebla cephalota</i>	A	No	No	No	No ²	N/A	No	No
<i>Pseudocyphellaria perpetua</i>	A	No	No	No	No ³	N/A	No	No
<i>Pseudocyphellaria rainierensis</i>	A	Yes	Yes	Yes	Yes ⁴	Various ⁹	No	No
<i>Teloschistes flavicans</i>	A	No	No	No	No ²	N/A	No	No
Bryophytes								
<i>Schistostega pennata</i>	A	Yes	Yes	Yes	Yes ⁵	Various ⁹	No	No
<i>Tetraphis geniculata</i>	A	Yes	Yes	Yes	Yes ⁵	Various ⁹	No	No
Vascular Plants								
<i>Botrychium minganense</i>	A	No	No	No	No ⁷	N/A	No	No
<i>Botrychium montanum</i>	A	No	No	No	No ⁷	N/A	No	No
<i>Coptis asplenifolia</i>	A	No	No	No	No ⁶	N/A	No	No
<i>Coptis trifolia</i>	A	No	No	No	No ⁷	N/A	No	No
<i>Corydalis aquae-gelidae</i>	A	Yes	Yes	Yes	Yes ⁴	Various ⁹	No	No
<i>Cypripedium fasciculatum</i>	C	No	No	No	No ⁷	N/A	No	No
<i>Cypripedium montanum</i>	C	Yes	Yes	Yes	Yes ⁷	Various ⁹	No	No
<i>Eucephalis vialis</i>	A	No	No	No	No ⁷	N/A	No	No
<i>Galium kamtschaticum</i>	A	No	No	No	No ⁶	N/A	No	No
<i>Plantanthera orbiculata</i> var. <i>orbiculata</i>	C	No	No	No	No ⁶	N/A	No	No
Category B Species (equivalent effort surveys needed if project area includes old-growth as defined in 2001 ROD glossary, p. 79-80)								
None			Yes	N/A	No ⁸	Various ⁹	No	
Additional Category B, D, E & F known sites located within the proposed project Area								
None			Yes	N/A	No ⁸	Various ⁹	No	

- 1 This species is only associated with large diameter true fir (above 2500' in Oregon). There is no suitable habitat within or adjacent to the project area.
- 2 This species known range within the NW Forest Plan is along the immediate coast or within the coastal fog zone within sight or sound of the Pacific Ocean. This project is not within the known range.
- 3 This species is only known from Cape Perpetua on the Oregon coast. This project is not within the known range.
- 4 This species is known to occur on Bureau of Land Management lands within the Cascades Resource Area.
- 5 This species is known to occur on Forest Service lands adjacent to the Cascade Resource Area.
- 6 This species is only known from western Washington. There are no known sites in Oregon.
- 7 This species is not known to occur on Bureau of Land Management lands within the Salem District.
- 8 Although surveys are not required for Category B, D, E, and F species, if suitable habitat is present in the proposed project area these species are addressed while conducting required botanical surveys.
- 9 Survey Date: **March 27th 2007**

SUMMARY OF SURVEY RESULTS: No category A, B, C, D, E or F species were identified during any survey of the proposed **Keel Mt DMS** area.

STATEMENT OF COMPLIANCE: Pre-disturbance surveys and management of known sites required by protocol standards to comply with the 2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines (as the 2001 ROD was amended or modified as of March 21, 2004) were completed for **Keel Mt DMS**. The **Keel Mt DMS** also complies with site management for any Category B, D, and E species as identified in the 2001 ROD (as modified).

Therefore, based on the preceding information (refer to Table A above) regarding the status of surveys and site management for Survey & Manage botanical species, it is my determination that the **Keel Mt DMS** complies with the provisions of the *2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines* (as the 2001 ROD was amended or modified as of March 21, 2004). For the foregoing reasons, the **Keel Mt DMS** is in compliance with the 2001 ROD as stated in Point (3) on page 14 of the January 9, 2006, Court order in Northwest Ecosystem Alliance et al. v. Rey et al.



Cindy Enstrom, Field Manager
Cascade Resource Area
Salem Bureau of Land Management

7-31-2007

Date

10.0 Response to Comments Received during the EA Comment Period:

The Keel Mountain Density Management and Riparian Buffer Study EA was made available for public review March 28, 2007 to April 27, 2007. A legal notice was placed in the *Albany Democrat Herald* newspaper on March 28, 2007, and posted on the Salem District's website. One comment letter was received. The concerns raised in the comments have been reviewed and the substantive comments have been summarized. Responses to these comments can be found in the following paragraphs.

1. Research Design

There were several questions regarding research design for various aspects of the project.

Response to #1: BLM has worked closely with Oregon State University (OSU) and Pacific Northwest Research Station (PNW) scientists to develop this project. BLM's primary role is to provide oversight regarding study objectives and implementation of vegetative management called for in the study. The research entities role is study design, data collection and analysis.

2. Wildlife Habitat Components

- a. *With regard to improving habitat components, what difference does it make in the long term if these trees are going to be harvested anyway? How much of this project is slated for regeneration harvest? (p. 1, ph 3)*

Response to 2a: See response to comment 4b.

- b. *Felling two green conifer trees per acre for CWD. Why can't snags be felled to create cwd? (p. 1, ph 5) If there are 1 to 2 large standing dead trees per acre in early decay stages, why can't some of them be felled to create cwd rather than live conifers? Units in the project area greatly exceed the total number of snags needed for cavity nesting bird (table 9). (p 5, ph 4)*

Response to 2b: Coarse woody debris (CWD) that meet RMP standards and guidelines (RMP p. 21) are at least 20" in diameter and at least 20 feet in length. EA table 8 (p.37) shows that snags greater than 20" in diameter are lacking in all units. That is the reason two live trees per acre will be felled for CWD.

3. Cumulative Effects

How close is this project to Beeline McDowell thinning? Are the same creeks involved? How far apart are they? How big is the watershed? (p. 2, ph 1)

Response to 3: The Keel Mtn project area is located in two separate 7th field catchments (Upper Hamilton Creek and Scott Creek) with approximately 7,300 acres (11.4 miles²) in combined drainage area. The McDowell Creek project area is located in three separate 6th field watersheds (Hamilton Creek, Scott Creek, and McDowell Creek) with approximately 12,725 acres (20 sq-miles) in combined drainage area.

The Keel Mtn and McDowell Creek projects ultimately drain to the same fifth field watershed: Hamilton Creek, which is approximately 118,240 acres.

Keel Mountain Project will not contribute cumulative effects to water resources when combined with the McDowell Creek Timber Sale. Streams within the Keel Mtn project area drain into Scott Creek. Some streams within the McDowell Creek project area (T. 12 S. R1E. sections 21, 25, 27) drain into the South Fork of Scott Creek.

Scott Creek joins the South Fork approximately 3 miles downstream of the Keel Mtn project area. Stream effects (fine sediments) are expected to dissipate approximately ¼ mile downstream from the Keel Mtn. project area (Keel Mtn EA pp. 5, 29, 31). The confluence of Scott Creek and South Fork is at least 2 miles downstream from that point, so there will be no overlap in effects.

4. Riparian Reserves

- a. *How much of the riparian reserve areas will be logged using ground based logging? (p. 2, ph 4)*

Response to 4a: As stated in the EA (p. 15) and in the DR (p. 3), 70% of the area will be ground based yarded. Most of the skyline yarding will take place in units 1 and 4 in and around the thin through riparian treatments.

- b. *Table 10 does not accurately describe the proposed project so the effects analysis is inaccurate. The forest will not be thinned immediately adjacent to the Riparian Reserves. 95% of the area to be thinned is in Riparian reserve. (p. 6 ph 4)*

Response to 4b: There is a bit of confusion in terminology. 95 % of the area to be thinned is within the Riparian Reserve land use allocation, not within Riparian buffers or stream protection buffers. The riparian or stream buffers are one component of the Riparian Reserve LUA. These buffers are designed to protect the aquatic resource (Aquatic Conservation Strategy Objectives 3-7). The Riparian Buffer study tests the assumptions of the Northwest Forest Plan along streams, using variable Riparian buffers or stream protection zones along with a thin through riparian treatment.

The other component of the Riparian LUA is the upland portion, in which treatments are designed to develop late successional habitat and address Aquatic Conservation 1, 2, 8, 9. Page 9 of the EA states that a purpose of this project is to continue implementation of the Keel Mountain DMS research project, which is designed to test critical assumptions of the Northwest Forest Plan's Standards and Guidelines, and produce results important for late-successional habitat development. These objectives are consistent with the upland portion of the Riparian Reserve LUA (RMP p. 11) and that is why the project is within the Riparian LUA.

- c. (p. 2, ph 3) *Is there a control area for the thin through treatments?*

Response to 4c: The control area is labeled control on the map. In addition, the streams with wider riparian buffers will also act as a control area. One of these areas is on the same stream as the thin through buffer in Unit 4.

5. Watershed and Hydrology (p. 3 ph 7)

- a. *Much of the area will not be protected by stream buffers, so why list them under BMPS (p. 31, Water Quality)? (p. 4 ph 1)*

Response to 5a: Most of the streams will have some kind of a stream buffer that will reduce the effects to the aquatic resource. The only streams without a stream buffer are the thin through riparian treatment areas in unit 1 and 4. See map.

- b. *What about TMDL standards? Why risk the thin through when the creek is fish bearing and already habitat impaired for anadromous fish? p. 3, ph 8*

Response to 5b: There are no anadromous fish in the project area (EA p. 34, 50). Impacts to the local cutthroat fish were fully analyzed on pages 33-35. The portion of Hamilton Creek that is not fully meeting temperature standards is down stream from the project area. The effects on water temperature were discussed in the EA (EA, pp. 31-32).

- c. *Why will banks not be destabilized just because the felled trees are left in place (EA p. 34, 35)? (p 5, ph1)*

Response to 5c: Trees adjacent to the stream in Unit 4 will not be yarded out (i.e., left in place) because during field review of the site it was noted that portions of the slope were subject to some instability. Therefore, we decided to reduce disturbance on these slopes to the lowest possible level while still accomplishing the study objectives. It was also noted that several trees in this area have already fallen into the channel and across the stream banks. These trees, even when they have fallen, are useful for stabilizing the slope at its base and trapping sediment. The process of bank scour associated with tree falling in riparian areas is a normal and recognized part of channel function in headwater streams. Therefore, we concluded that leaving the trees after falling will help to reduce impacts while removing them will likely increase sediment movement.

The last paragraph of page 30 and the first paragraphs of page 31 in the EA discuss potential sediment effects from the trees felled in this area (i.e., “thinned through” portion of unit 4). Some localized bank scour and increase in turbidity is anticipated however, bank “destabilization” implies far more destruction than is likely to occur.